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March 5, 2014

Electronic Submittal

Mr. James Lepinski
Docket Coordinator
Public Service Commission of Wisconsin
610 North Whitney Way, P.O. Box 7854
Madison, WI 53707-7854

Joint Application for PSCW Certificate of Public Convenience and Necessity and WDNR Utility Permit
Badger Coulee 345 kV Transmission Line Project
PSCW Docket No. 5-CE-142

Applicants' Response to the November 21, 2013 PSCW Incompleteness Determination – Items Forwarded to MISO.

Dear Mr. Lepinski:

Attached please find Part 8 of the Applicants' responses to Item Numbers 01.103, 0.104, 01.105, 01.106, 01.140, and 01.151 of the November 21, 2012 incompleteness item requests in the above referenced docket. These responses have been prepared by the Midcontinent Independent System Operator, Inc. ("MISO").

MISO filed a motion to intervene in the Badger Coulee docket on November 18, 2013 (See ERF REF # 193621). Based on the type of information requested, the Applicants, American Transmission Company LLC, by its corporate manager, ATC Management Inc., (collectively ATC), and Northern States Power Company, a Wisconsin corporation (NSPW), forwarded these requests to MISO. MISO agreed to compile the requested information, which the Applicants are filing on its behalf.

Please contact us if you have any questions.

Sincerely,

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Badger Coulee 345 kV Transmission Line Project
Docket No. 5-CE-142

PSCW First Set of Request Items
Request No. 01.103 Response

REQUEST NO. 01.103:

(Application Appendix D, p. 7 of 263; AFR Sections 2.7 and 2.10.) Regarding Tables 1, pp. 15, 19, and Table 53, provide the capital cost allocation for the Badger-Coulee 345 kV MISO Multi-Value Project (MVP) for ATC load balancing authorities (LBA) and each of the other MISO LBA.

RESPONSE TO REQUEST NO. 01.103:

This request was referred to MISO for assistance, and the following was provided:

The cost of each MVP is allocated on a system-wide basis to Transmission Customers that withdraw energy from the MISO system, and is recovered through an MVP Usage Charge. MISO posts estimates of the MVP charges for approved MVPs by LBA and updates the estimates twice annually at the link entitled "Indicative annual charges for approved Multi Value Projects (Schedule 26-A)." These estimates, as updated in August 2013, are located on the web page:

https://www.misoenergy.org/PLANNING/TRANSMISSIONEXPANSIONPLANNING/Pages/MTEPStudies.aspx

The latest estimate for the allocation of each MVP, estimated from 2010 MWh withdrawals, is summarized in the following table.

LBA	Percent Allocation
ALTE	2.5%
MGE	0.7%
UPPC	0.2%
WEC	6.9%
WPS	2.9%
Total ATC	13.3%
All Other	86.7%

The indicative MVP charges from 2014 – 2033 are captured on the following page.

Dated this 5th day of March, 2014.

Request No. 01.103 Response cont.

***Indicative A*nnual MVP Charges for All Approved MVPs by Local Balancing Authority for 2014-2033 (in Millions of Nominal Dollars)**

LBA	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
ALTE	$4.71	$7.23	$10.13	$14.93	$17.85	$21.17	$21.59	$21.38	$21.17	$20.96	$20.74	$20.53	$20.32	$20.11	$19.89	$19.68	$19.47	$19.26	$19.04	$18.83
ALTW	$7.64	$11.72	$16.43	$24.21	$28.95	$34.33	$35.02	$34.68	$34.33	$33.99	$33.64	$33.30	$32.95	$32.61	$32.26	$31.92	$31.57	$31.23	$30.88	$30.54
AMIL	$17.77	$27.27	$38.20	$56.31	$67.34	$79.85	$81.45	$80.65	$79.85	$79.05	$78.24	$77.44	$76.64	$75.84	$75.04	$74.23	$73.43	$72.63	$71.83	$71.03
AMMO	$16.56	$25.42	$35.61	$52.49	$62.77	$74.43	$75.92	$75.18	$74.43	$73.68	$72.93	$72.19	$71.44	$70.69	$69.94	$69.20	$68.45	$67.70	$66.96	$66.21
BREC	$2.46	$3.77	$5.28	$7.79	$9.32	$11.05	$11.27	$11.16	$11.05	$10.94	$10.82	$10.71	$10.60	$10.49	$10.38	$10.27	$10.16	$10.05	$9.94	$9.83
CIN	$14.80	$22.72	$31.83	$46.92	$56.11	$66.53	$67.87	$67.20	$66.53	$65.86	$65.19	$64.53	$63.86	$63.19	$62.52	$61.85	$61.19	$60.52	$59.85	$59.18
CONS	$16.69	$25.62	$35.89	$52.90	$63.26	$75.02	$76.52	$75.77	$75.02	$74.26	$73.51	$72.76	$72.00	$71.25	$70.50	$69.74	$68.99	$68.24	$67.49	$66.73
CWLD	$0.55	$0.85	$1.19	$1.76	$2.10	$2.49	$2.54	$2.52	$2.49	$2.47	$2.44	$2.42	$2.39	$2.37	$2.34	$2.32	$2.29	$2.27	$2.24	$2.22
CWLP	$0.76	$1.17	$1.64	$2.41	$2.88	$3.42	$3.49	$3.46	$3.42	$3.39	$3.35	$3.32	$3.28	$3.25	$3.21	$3.18	$3.15	$3.11	$3.08	$3.04
DECO	$20.02	$30.73	$43.05	$63.46	$75.88	$89.98	$91.79	$90.88	$89.98	$89.08	$88.17	$87.27	$86.37	$85.46	$84.56	$83.66	$82.75	$81.85	$80.95	$80.04
DPC	$2.15	$3.30	$4.62	$6.81	$8.14	$9.65	$9.85	$9.75	$9.65	$9.55	$9.46	$9.36	$9.26	$9.17	$9.07	$8.97	$8.88	$8.78	$8.68	$8.59
GRE	$4.72	$7.24	$10.15	$14.95	$17.88	$21.21	$21.63	$21.42	$21.21	$20.99	$20.78	$20.57	$20.35	$20.14	$19.93	$19.71	$19.50	$19.29	$19.08	$18.86
HE	$0.15	$0.23	$0.33	$0.48	$0.58	$0.69	$0.70	$0.69	$0.69	$0.68	$0.67	$0.67	$0.66	$0.65	$0.65	$0.64	$0.63	$0.62	$0.62	$0.61
IPL	$5.86	$8.99	$12.60	$18.57	$22.21	$26.33	$26.86	$26.60	$26.33	$26.07	$25.80	$25.54	$25.27	$25.01	$24.74	$24.48	$24.22	$23.95	$23.69	$23.42
MDU	$1.01	$1.56	$2.18	$3.22	$3.85	$4.56	$4.65	$4.61	$4.56	$4.51	$4.47	$4.42	$4.38	$4.33	$4.29	$4.24	$4.19	$4.15	$4.10	$4.06
MEC	$9.19	$14.10	$19.76	$29.12	$34.83	$41.30	$42.13	$41.71	$41.30	$40.88	$40.47	$40.05	$39.64	$39.22	$38.81	$38.39	$37.98	$37.56	$37.15	$36.74
MGE	$1.31	$2.02	$2.82	$4.16	$4.98	$5.90	$6.02	$5.96	$5.90	$5.84	$5.78	$5.72	$5.66	$5.61	$5.55	$5.49	$5.43	$5.37	$5.31	$5.25
MP	$4.02	$6.17	$8.65	$12.75	$15.24	$18.08	$18.44	$18.26	$18.08	$17.90	$17.71	$17.53	$17.35	$17.17	$16.99	$16.81	$16.62	$16.44	$16.26	$16.08
MPW	$0.34	$0.52	$0.73	$1.07	$1.28	$1.52	$1.55	$1.53	$1.52	$1.50	$1.49	$1.47	$1.46	$1.44	$1.43	$1.41	$1.40	$1.38	$1.37	$1.35
NIPS	$7.23	$11.10	$15.55	$22.93	$27.41	$32.51	$33.16	$32.83	$32.51	$32.18	$31.86	$31.53	$31.20	$30.88	$30.55	$30.22	$29.90	$29.57	$29.24	$28.92
NSP	$17.89	$27.46	$38.47	$56.71	$67.81	$80.42	$82.03	$81.22	$80.41	$79.61	$78.80	$77.99	$77.18	$76.38	$75.57	$74.76	$73.95	$73.15	$72.34	$71.53
OTP	$2.99	$4.59	$6.43	$9.48	$11.34	$13.45	$13.72	$13.58	$13.45	$13.31	$13.18	$13.04	$12.91	$12.77	$12.64	$12.50	$12.37	$12.23	$12.10	$11.96
SIGE	$3.00	$4.61	$6.46	$9.52	$11.39	$13.50	$13.77	$13.64	$13.50	$13.37	$13.23	$13.09	$12.96	$12.82	$12.69	$12.55	$12.42	$12.28	$12.15	$12.01
SIPC	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
SMP	$0.64	$0.98	$1.38	$2.03	$2.43	$2.88	$2.94	$2.91	$2.88	$2.85	$2.82	$2.79	$2.77	$2.74	$2.71	$2.68	$2.65	$2.62	$2.59	$2.56
UPPC	$0.44	$0.67	$0.94	$1.38	$1.65	$1.96	$2.00	$1.98	$1.96	$1.94	$1.92	$1.90	$1.88	$1.86	$1.84	$1.82	$1.80	$1.78	$1.76	$1.74
WEC	$12.89	$19.79	$27.72	$40.86	$48.86	$57.94	$59.10	$58.52	$57.94	$57.36	$56.78	$56.19	$55.61	$55.03	$54.45	$53.87	$53.29	$52.70	$52.12	$51.54
WPS	$5.41	$8.30	$11.63	$17.14	$20.50	$24.31	$24.80	$24.55	$24.31	$24.06	$23.82	$23.58	$23.33	$23.09	$22.84	$22.60	$22.36	$22.11	$21.87	$21.62
Exports and Wheel-Throughs excluding PJM sinks	$4.33	$6.65	$9.31	$13.73	$16.41	$19.46	$19.85	$19.66	$19.46	$19.27	$19.07	$18.88	$18.68	$18.49	$18.29	$18.09	$17.90	$17.70	$17.51	$17.31

Badger Coulee 345 kV Transmission Line Project
Docket No. 5-CE-142

PSCW First Set of Request Items
Request No. 01.104 Response

REQUEST NO. 01.104:

(Application Appendix D, p. 7 of 263; AFR Sections 2.7 and 2.10.) Provide a map and project list of all the MTEP11 approved MVPs.

RESPONSE TO REQUEST NO. 01.104:

This request was referred to MISO for assistance, and the following was provided:

The map and list of all MTEP11 approved MVPs are included in Figure 1.1, "MVP Portfolio," on page 1 of the "Multi Value Project Portfolio Results and Analyses" report dated January 12, 2012 and on the MISO Candidate MVP Portfolio Study webpage. Links to the report and webpage are provided below. Please note that in these documents, the "Badger Coulee" line is referred to as the North LaCrosse – Madison line.

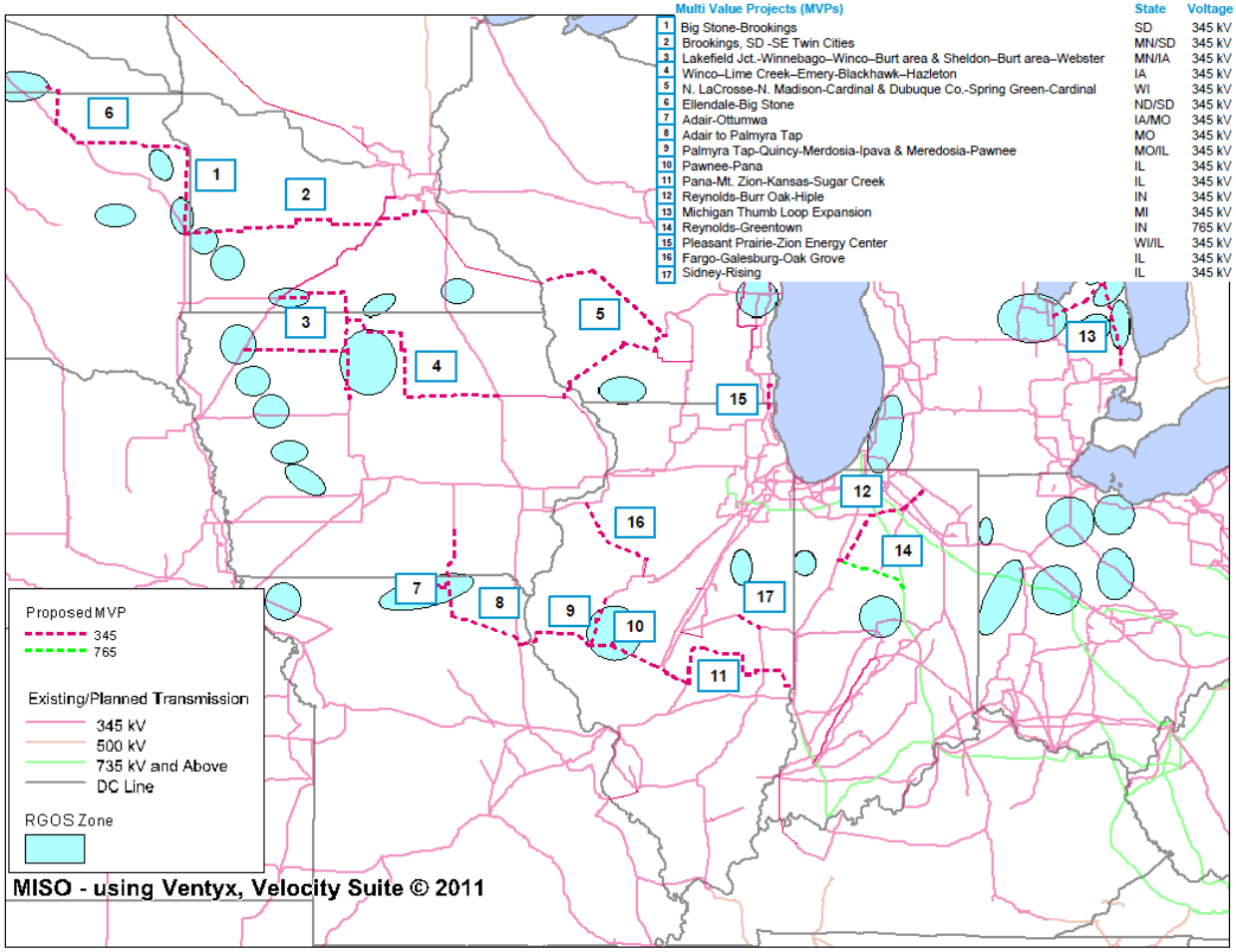
Multi Value Project Portfolio Results and Analyses report:
https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf

MISO Candidate MVP Portfolio Study:
https://www.misoenergy.org/Planning/Pages/MVPAnalysis.aspx

The map located in Figure 1.1 (noted above) is provided below.

Figure 1.1: MVP portfolio[1]

From the "Multi Value Project Portfolio Results and Analyses" report dated January 12, 2012



[1] MVP line routing shown throughout the report is for illustrative purposes only and do not represent the final line routes.

Dated this 5th day of March, 2014.

Badger Coulee 345 kV Transmission Line Project
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PSCW First Set of Request Items
Request No. 01.105 Response

REQUEST NO. 01.105:

(Application Appendix D, p. 7 of 263; AFR Sections 2.7 and 2.10.) Summarize the ATC cost allocations from all the other MISO MVPs.

RESPONSE TO REQUEST NO. 01.105:

This request was referred to MISO for assistance, and the following was provided:

As discussed in the Response to Request No. 01.103, MISO posts an estimate of the MVP charges and updates it twice annually at the link entitled "Indicative annual charges for approved Multi Value Projects (Schedule 26-A)" on the web page:

https://www.misoenergy.org/PLANNING/TRANSMISSIONEXPANSIONPLANNING/Pages/MTEPStudies.aspx

The cost allocations posted by MISO show results that are summarized in the Response to Request No. 01.103.

Dated this 5th day of March, 2014.

Badger Coulee 345 kV Transmission Line Project
Docket No. 5-CE-142

PSCW First Set of Request Items
Request No. 01.106 Response

REQUEST NO. 01.106:

(Application Appendix D, p. 7 of 263; AFR Sections 2.7 and 2.10.) Summarize the MTEP11 MVPs costs and benefits to the MISO regional footprint and the local resource zones as documented in MTEP11.

RESPONSE TO REQUEST NO. 01.106:

This request was referred to MISO for assistance, and the following was provided:

The MVP portfolio is composed of seventeen (17) projects which, when integrated into the transmission system, provide multiple types of benefits under all future scenarios studied by MISO. These benefits include reliability, economic, and public policy benefits, as summarized below.

Each line in the MVP portfolio enhances the system reliability. For example, the Badger – Coulee line solves 61 line or transformer overloads, under a multitude of contingencies. The portfolio also works together to mitigate 31 conditions that could cause transient system instability, and it will enable 1,400 MW of additional transfers from the western portion of MISO into Wisconsin before voltage instability limits are reached. These reliability benefits allow the MVP portfolio to enable the delivery of 41 million MWh of renewable energy annually.

The MVP portfolio also allows for a more efficient dispatch of generation resources, opening wholesale markets to competition and spreading the benefits of low cost generation to Wisconsin and throughout the MISO footprint. These benefits were outlined through a series of production cost analyses that captured the economic benefits of the low cost generation resources that can be reliably delivered with the addition of the MVP transmission. These benefits reflect the savings achieved through the reduction of transmission congestion and through more efficient use of generation resources. The analyses found that the MVP portfolio will produce an estimated $12.4 to $40.9 billion in present value adjusted production cost benefits to the aggregate MISO footprint under existing energy policies, depending on the period over which benefits are calculated, discount rates applied, and assumptions about growth rates of energy and demand. Under additional possible Future Scenarios representing sensitivities to variations in energy policies, this benefit increases to a maximum present value of $91.7 billion.

While congestion-driven production cost benefits were by far the single greatest benefit identified, additional benefits from the new transmission facilities were also identified. These additional benefits included reductions in operating reserve requirements, reduced planning reserve margin requirements, reduced transmission system losses, lower capital costs of renewable resources, and deferrals of transmission investments that would be required for the reliability of the system in the absence of the Mid-MISO MVPs. These additional factors contribute between $3.1 billion and $8.2 billion in additional present value of benefits above the production cost savings.

In total, the costs for the MVP projects were estimated at approximately $5.2 billion (2011) dollars at the conclusion of the MVP analysis. When compared to the present value of the revenue requirements for the MVP portfolio, the portfolio produces total benefits of between 1.8 and 3.0 times the costs on a present value basis, under existing policies.

This information is available as a part of the MISO "Multi Value Project Portfolio Results and Analyses" report dated January 12, 2012. The project costs for the MVP portfolio projects are found in Table 1.1, "MVP Portfolio," on page 2 of the report. The benefit/cost ratio ranges are found in Figure 1.5, "Recommended MVP portfolio benefits spread," on page 6 of the report. The full report can be accessed at the following location:
https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf

Dated this 5th day of March, 2014.

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PSCW First Set of Request Items
Request No. 01.140 Response

REQUEST NO. 01.140:

(Application Appendix D, p. 100 of 263; AFR Section 2.8.2.) Discuss wind curtailment across MISO and how Badger-Coulee will change that curtailment. Provide separate total annual curtailments for both economic and manual curtailments for the last five years.

RESPONSE TO REQUEST NO. 01.140:

This request was referred to MISO for assistance, and the following was provided:

The Badger Coulee Project provides additional transfer capability, which will help enable additional wind development and reduce curtailments of wind generation. One of the components of MISO's MVP analysis was to document the ability for the portfolio to enable the development of renewable energy in support of existing public policy mandates. The MISO analysis demonstrated that 63 percent of the 2026 renewable portfolio mandates would be curtailed without the MVP portfolio being enacted. A second analysis was also performed to determine if any incremental wind energy would be enabled by the MVP portfolio, in excess of the 2026 mandated amounts. In total, when the curtailment and incremental wind output were considered, it was determined that the MVP portfolio will enable 41 million MWh of renewable energy annually. This information is available in Section 7 of the MISO "Multi Value Project Portfolio Results and Analyses" report dated January 12, 2012.

The full report can be accessed at the following location:
https://www.misoenergy.org/Library/Repository/Study/Candidate%20MVP%20Analysis/MVP%20Portfolio%20Analysis%20Full%20Report.pdf

The following table includes manual curtailments, and also includes automated market bindings, as enabled by the implementation of Dispatchable Intermittent Resources ("DIRs").

Annual Wind Curtailments

	Total 2009	Total 2010	Total 2011	Total 2012	2013[1] YTD
No of Wind Curtailments	**1,141**	**2,117**	**2,034**	**889**	**185**
Estimated MWHR Curtailed	**291,674**	**824,399**	**720,190**	**266,383**	**65,010**
Duration (Hours)	**8,005**	**19,951**	**20,365**	**10,430**	**2,347**
DIR Dispatch Down[2]	**N/A**	**N/A**	**130,296**	**582,653**	**972,580**

Dated this 5th day of March, 2014.

[1] Through October 2013

[2] DIRs were first available in June 2011, and first required in March 2013.

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PSCW First Set of Request Items
Request No. 01.151 Response

REQUEST NO. 01.151:

(Application Appendix D, pp. 232-3 of 263; AFR Section 2.1.) Provide MISO's annual peak demand and energy sales since 2006. In the response to this item, note changes in MW and MWh by year due to exits and additions to the MISO footprint.

RESPONSE TO REQUEST NO. 01.151:

This request was referred to MISO for assistance, and the following was provided:

The annual peak demand for 2007 through 2013 and the annual energy sales for 2007 through 2012 are detailed below. This data includes the impact of Louisville Gas and Electric, FirstEnergy, and Duke Energy Ohio leaving the MISO energy market in September 2006, June 2011, and January 2012, respectively. It also includes the effect of MISO integrating MidAmerican Energy as well as Muscatine Power and Water in September 2009, Dairyland Power Cooperative in June 2010, and Big Rivers Electric Corporation in December 2010[3]. This data does not yet include the impact of the Southern region (integration in December 2013).

Annual Instantaneous Peak Load

Year	MW
2007	104,232
2008	98,638
2009	96,790
2010	108,907
2011	103,975
2012	98,358
2013	95,777

Annual Energy Sales

Year	MWH
2007	564,311,528
2008	553,627,052
2009	512,713,049

[3] Dates refer to integration or departure from the MISO energy market.

2010	562,622,741
2011	553,076,856
2012	497,890,516
2013	TBD

Dated this 5th day of March, 2014.